Fact Sheet
Cryptosporidium

Office of Water Programs
Division of Water Supply Engineering
VIRGINIA DEPARTMENT OF HEALTH
Protecting You and Your Environment

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Background

Cryptosporidium is a single-celled protozoan parasite that infects a variety of animals, including humans. *Cryptosporidium* is widespread in the environment, existing as an infectious, spherical oocyst, 4 to 6 microns in diameter, which is highly resistant to chlorination. When ingested, these oocysts pass through the stomach into the small intestine where they release sporozoites which invade the cells of the intestinal lining, impairing the intestine's ability to absorb water and nutrients. New oocysts are formed in the intestine which either release additional sporozoites in the host or are excreted in the feces to the environment.

Origin

All *Cryptosporidium* oocysts originate in the feces of infected animals, including humans. Oocysts from one type of animal may infect other animals. Host animals for *Cryptosporidium* include humans and other vertabrates, especially cattle. *Cryptosporidium* also infects other large mammals (wild and domestic), small mammals (rodents, cats, dogs, etc.), birds, reptiles, and fish. During active infection, the feces from the host animal may contain several thousand oocysts per milliliter.

Occurrence

Cryptosporidium oocysts occur anywhere the environment is contaminated by feces and, ultimately, find their way into virtually all of our surface water sources (including many groundwater sources under the direct influence of surface water).

Sampling and Laboratory Analysis

Sampling for the presence of *Cryptosporidium* oocysts involves filtering large quantities of water through a one (1) micron filter, removing the trapped particles, extracting the cysts and oocysts, and refiltering the extract. The sample thus obtained is then analyzed using an indirect fluorescent antibody procedure that relies heavily on the skill of an experienced microtechnician. At this time there is no accepted standard method for *Cryptosporidium* and the oocyst recovery efficiency and sensitivity are variable

Health Effects

Cryptosporidium can cause gastrointestinal disorders (cryptosporidiosis) in humans. The disease is characterized by symptoms that include diarrhea, stomach cramps, fatigue, and loss of appetite. The public should be aware that *Cryptosporidium* infection can be asymptomatic with none of the symptoms being present. The incubation period varies from 2 to 12 days, generally averaging 7 days, and symptoms typically last for 10 to 14 days, but can linger off and on up to 30 days or longer. Small babies and the elderly may take significantly longer to recover. Cryptosporidiosis can be life threatening to

immunocompromised individuals including cancer patients, organ transplant patients, and HIV positive patients, among others.

Patient Treatment

No treatment other than rehydration, when called for, has been proven to be effective for cryptosporidiosis. The disease will normally subside on its own. Anyone with severe or protracted diarrhea should consult a physician.

Prevention

- Avoid any direct contact with human or animal feces.
- Avoid drinking water directly from lakes, streams, springs, or any unknown source.
- Wash hands after using the toilet, changing diapers, and before handling food.
- Wash hands after contact with, or cleaning up after, pets.
- Wash hands after gardening or other direct contact with the soil.
- Avoid unpasteurized milk and milk products.
- Child-care and health-care workers should be especially careful to protect themselves and avoid the possibility of spreading cryptosporidiosis from person to person.
- Persons with cryptosporidiosis should wash their hands often to avoid spreading the disease.
- Persons with diarrhea should not use public swimming facilities.
- Persons using drinking water of unknown quality or suspected to be contaminated by *Cryptosporidium* are advised to bring their drinking water to a rolling boil for at least one minute before consumption.

Standards and Health Advisories

No official EPA drinking water standard, treatment technique, or health advisory exists for *Cryptosporidium* at this time. The best protection is filtration and disinfection treatment in accordance with the Surface Water Treatment Rule.

Waterworks owners and operators are advised to optimize the performance of their filtration processes to produce filtered water turbidities no greater than 0.2 NTU, with an operational goal of 0.1 NTU.

For more information, contact: Division of Water Supply Engineering, Office of Water Programs, Virginia Department of Health, 1500 East Main Street, Room 109, Richmond, Virginia 23219. Voice (804) 371-2885 or FAX (804) 786-5567.

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